REMARKS

Claims 1-30 were submitted for examination and, in the aforementioned Office action, were rejected as allegedly unpatentable over cited art. By this amendment, the claims have been revised to distinguish more clearly over the cited art and are submitted for reconsideration and reexamination.

In section 2 of the action, claims 14-22 were rejected under 35 U.S.C. §102(e) as allegedly anticipated by Sarraf et al. (US 6,175,719). Since the Sarraf patent issued on January 16, 2001, prior to Applicant's filing date, it is assumed that the Examiner intended to base the rejection on 35 U.S.C. §102(b).

Claims 14-22 have been cancelled.

In section 5 of the Office action , claims 1-13 and 23-30 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Sarraf in view of Malcolm et al. (US 5,790,939). The Examiner asserts that "Sarraf teaches everything claimed including satellites communicating with terminals." The Examiner concedes, however, that "Sarraf lacks a teaching of the satellite communicating between a terminal and a gateway." The Examiner relies on Malcolm to remedy this deficiency. Applicant respectfully disagrees.

Sarraf discloses a multi-spot-beam satellite system with broadcast capacity. The architecture of Fig. 2 of Sarraf bears some resemblance to Applicant's Figure 1. The distinctions lie principally in the way the satellite receive and transmit subsystems interact with the other components of the satellite communication system. In the Sarraf system, orthogonal mode transducers (108) are apparently used to allow multiplexing of two uplink signals (102) transmitted with different polarizations, but this aspect of the Sarraf architecture is not discussed in any detail at all. In the embodiment of Fig. 3, the

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orthogonal mode transducers (108) are used to separate broadcast mode signals from regular signals. (See column 4, lines 1-49.) Nowhere in Sarraf is it suggested that the orthogonal mode transducers might be used to separate (in the receive subsystem, and combine, in the transmit subsystem) forward communication path and reverse communication path signals transmitted between gateway terminals and user terminals. The obvious reason for this lack is that Sarraf is not concerned with gateway terminals, as the Examiner has noted.

The present invention is concerned with improving the efficiency of communications between gateway terminals and user terminals through a satellite. The conventional approach prior to the present invention was to provide separate and distinct communication paths for the forward and reverse transmissions between a gateway terminal and a user terminal. Moreover, the conventional approach provided different components with different functional properties for the two communication paths. The principal contribution of the present invention is to utilize equivalent and substantially similar components in both the forward and reverse communication paths, and to use some components that a common to both paths. In the embodiment of Figure 1, the equivalent components include, for example, LNA D/C (amplifier-downconverter) blocks 116 and 118 and the U/C (upconverter) blocks 120 and 122. In this configuration, the forward and reverse communication paths share OMTs 114 and 132 and share the antennas 112 and 134. In the embodiment of Figure 4, most components are shared rather than being simply equivalent. For example, LNA D/C 412 and U/C 418 are shared by the forward and reverse communication paths.

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Nothing in Sarraf suggests this kind of component equivalence or commonality. Moreover, Malcolm fails to correct this deficiency because it does not disclose any details of the "space segment" (24). The best that can said about Malcolm is that it discloses a system with user terminals and gateway terminals, but it does not disclose how forward and reverse communication paths are processed in the satellite 24. The Examiner will doubtless maintain that the details missing in Malcolm are to be found in the satellite receiver-transmitter structure of Sarraf. The obviousness of such a combination is, in Applicant's view, lacking. Sarraf discloses a receiver-transmitter architecture in which orthogonally polarized signals may be received and separated by an OMT (108) for further processing. However, Sarraf lacks any disclosure of using such an architecture to handle forward and reverse communication paths between gateway terminals and user terminals. On the other hand, Malcolm barely mentions gateway terminals and user terminals but fails to disclose how communication paths between them are processed in a "space segment." In other words, neither patent disclosure provides the necessary incentive to combine the two. For this reason, Applicant respectfully requests that the rejection of claims 1-13 and 23-30 be reconsidered and withdrawn.

In addition to the foregoing arguments, Applicant further urges the Examiner to reconsider the rejection of those claims that define in particular a communication system in which a common component, such as an LNA or D/C, is used to process signals in both the forward and reverse communication paths, as defined, for example, in claims 11-12, 29 and 30. Nothing in Sarraf discloses or suggests this configuration.

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Nor does Malcolm provide any help in this regard because Malcolm discloses nothing of the details of signal processing in the satellite portion of the system.

Independent claims 1 and 23 have been amended in an effort to emphasize the distinctions discussed above. In view of the foregoing, claims 1-13 and 23-30 are all believed to be allowable over the cited art. A formal indication of allowability is, therefore, respectfully requested.

Respectfully submitted,

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